A STORY OF DESIGN THINKING IN THE CLASSROOM

AE TEACHERS CORNER

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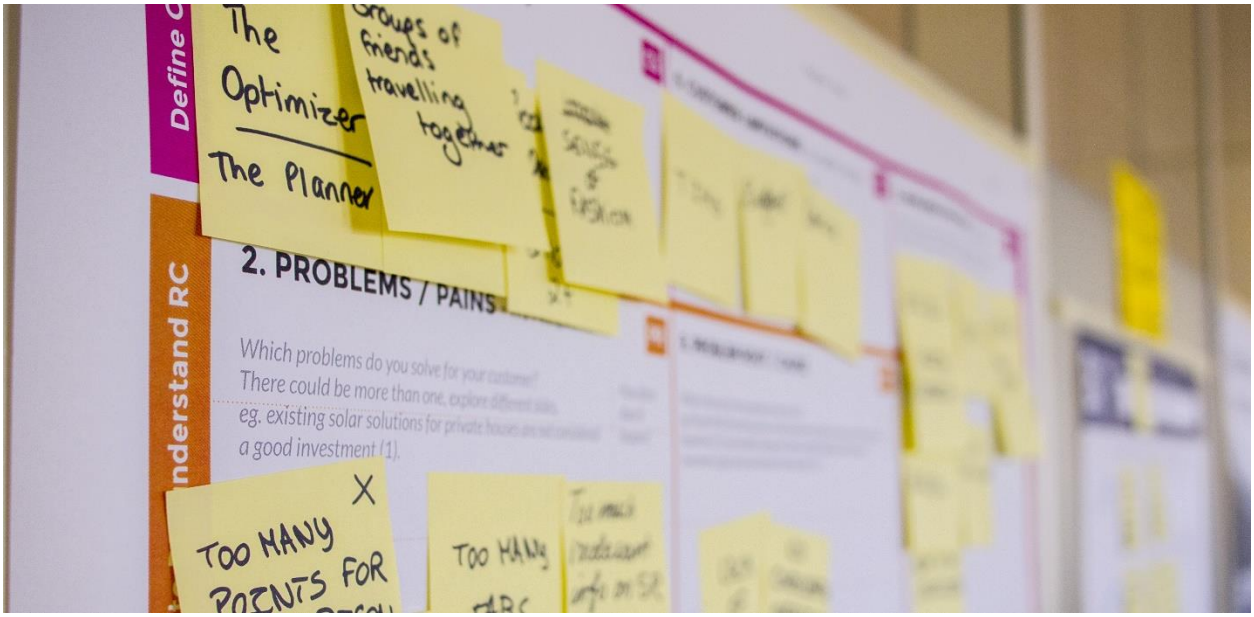

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An experienced teacher, Hannah, wants to help her students better understand the benefits of learning the English language and American culture. Although they are good students and earn high marks on quizzes and tests, they seem to struggle with using their knowledge beyond the classroom. Many students are waiting until they go to a university or travel abroad to practice their English, but Hannah knows their language skills can already be helpful. She asks herself, "How might we use our English-speaking skills and understanding of American culture to solve a problem in our community?"

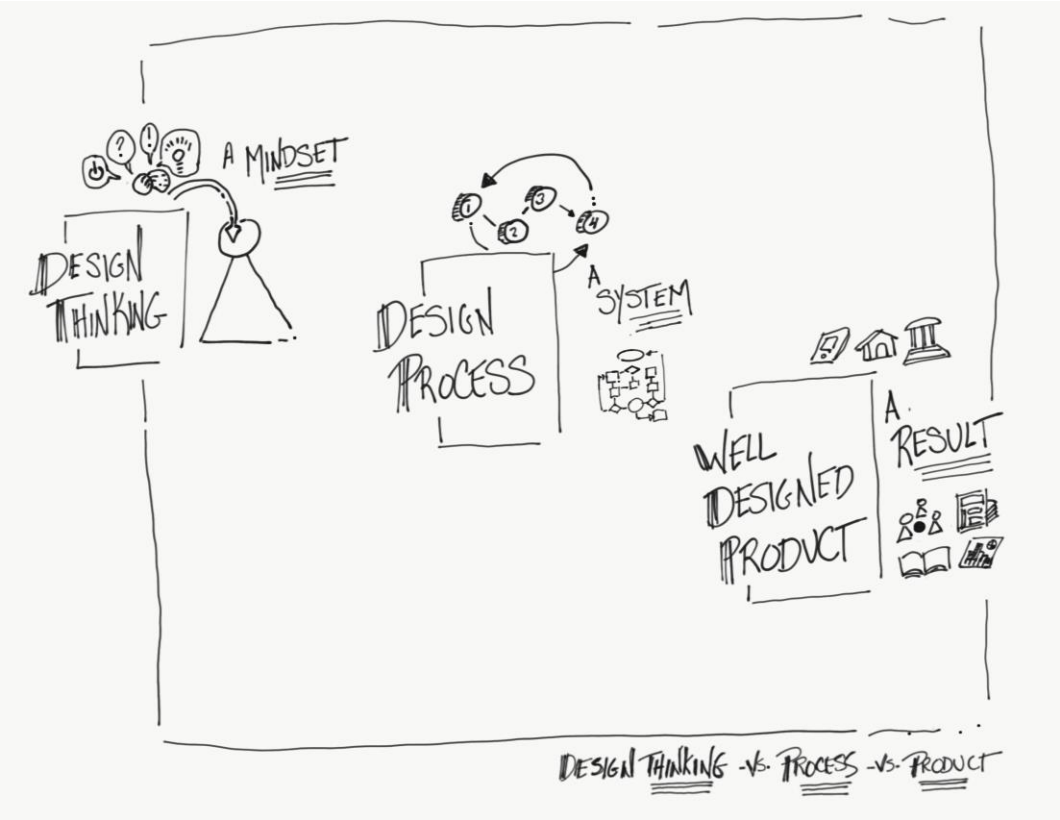
How might we turn our classrooms into spaces that prepare our students to solve meaningful challenges in the world in addition to learning the English language skills they need to communicate effectively? How might we better design learning experiences that meet the needs of our students while also achieving curricular goals?

The answers to these questions might very well be found in the adoption of a design-thinking approach to teaching and learning. Design thinking is an approach to solving problems that is motivated by empathy and centers on helping

people. In this article you will learn the essential qualities of a design thinking mindset, the distinctions between design thinking, design processes and designed products, and two ways to bring design thinking into your work with students.

Design Thinking Vs Design Process Vs Designed Product

Any Internet search for "design thinking" will produce thousands of results with seemingly contradictory information or suggestions. All of this information can be very overwhelming for someone just getting started with design thinking. To reduce the feeling of being overwhelmed, it helps to distinguish a ***design thinking mindset*** from ***a design process*** from a ***well-designed product*** and to understand the importance of empathy to all three.



A ***design thinking mindset*** consists of the mental habits and behavior-that make it possible to do design thinking and generate effective designs using a design process. Some essential qualities of a ***design thinking mindset*** include the belief that mistakes lead to new knowledge, that we should go ahead and try a new idea rather than wait for ideal circumstances before trying, and that we should learn how to be comfortable with discomfort. Adopting a design thinking mindset can be a messy and challenging experience that requires us to think differently from how we typically do.

A ***design process*** is a phase-by-phase procedure someone follows in order to develop an effective design. Most design processes have five or six phases; there are some processes with as many as twenty-two stages. This article will introduce an easy-to-learn process of only four stages. Unlike linear processes with a clear beginning, middle, and end, a design process is always cyclical. For example, designers might start with the first phase, go on to the next, but may need to revisit the first phase before going on to the third phase and finally producing a prototype design in the fourth phase. Most importantly, during the design process, all decisions should be made based on evidence of empathy, or the awareness of and sensitivity to others' experiences and emotions. Empathy acts as fuel for design thinking and the design process.

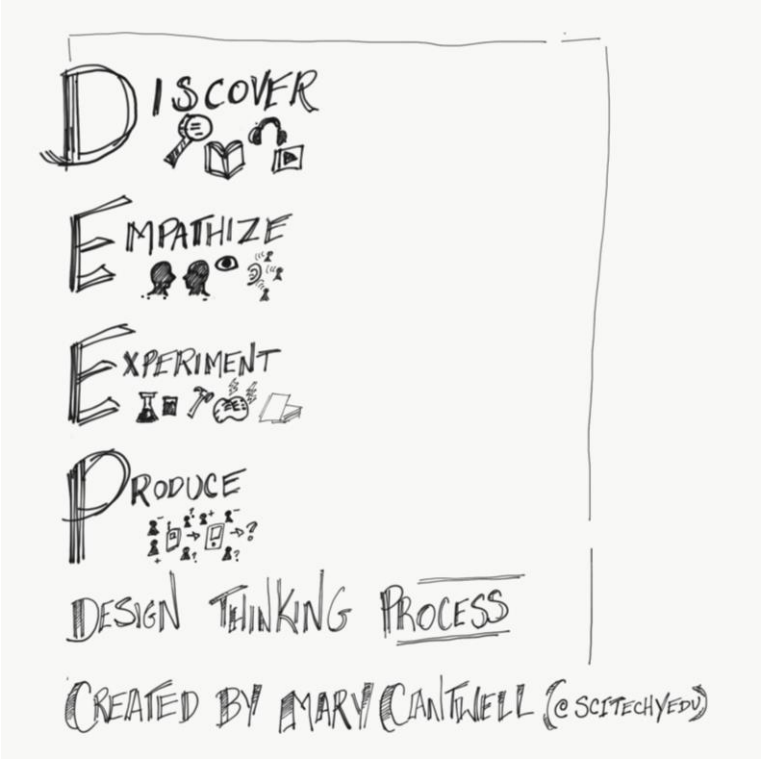
A ***well-designed product*** is the end result of someone adopting a design thinking mindset and following a design process to completion. For a product to be considered well-designed, it must meet the needs of the people who will use it most. And the best designs are an effective combination of form and function: they look or feel nice and they do the job well. Great examples can be found in mobile phone and automobile designs, where the appearance of the design matters as much as the functionality.

Using Design Thinking as a Tool for Student Learning

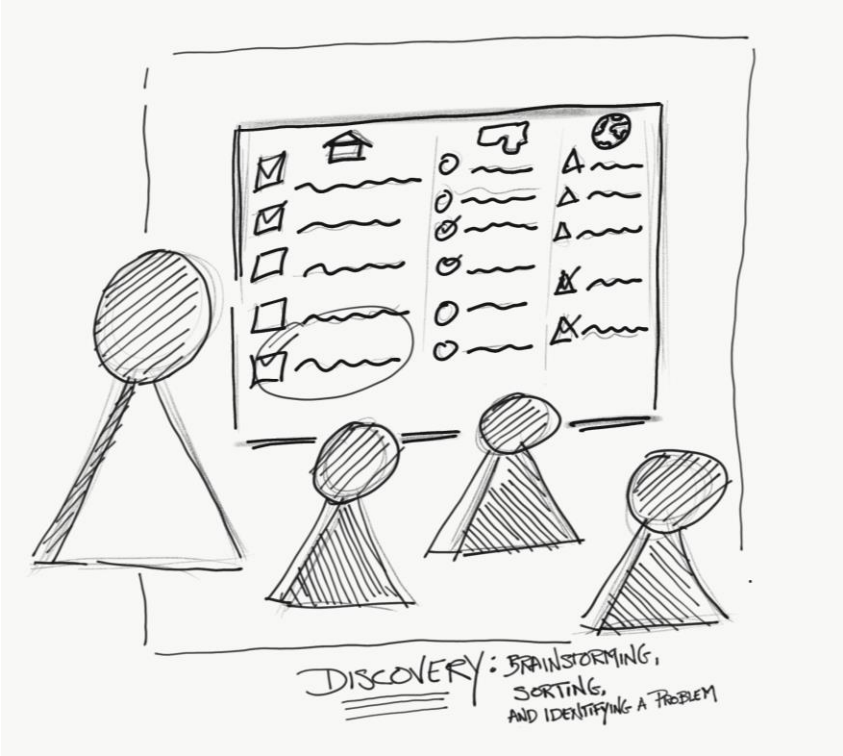
When we help students develop their design thinking mindsets, we prepare them to use the knowledge from our courses to solve problems in a meaningful way based on empathy and understanding the needs of others. English language learners might use their new skills to address problems with accessing resources in their communities, problems with global audiences misunderstanding their culture, or even problems with communication within their families. Because empathy-based problem-solving can be very challenging for teachers and students it is helpful to have a simple yet powerful process to follow.

Mary Cantwell, an educator from Atlanta, Georgia, developed DEEP DT to provide a design process that anyone can use. It was designed for her young students and has been used successfully around the world with students of all ages and backgrounds.

DEEP is an acronym for Discover, Empathize, Experiment, Produce. DT stands for Design Thinking.



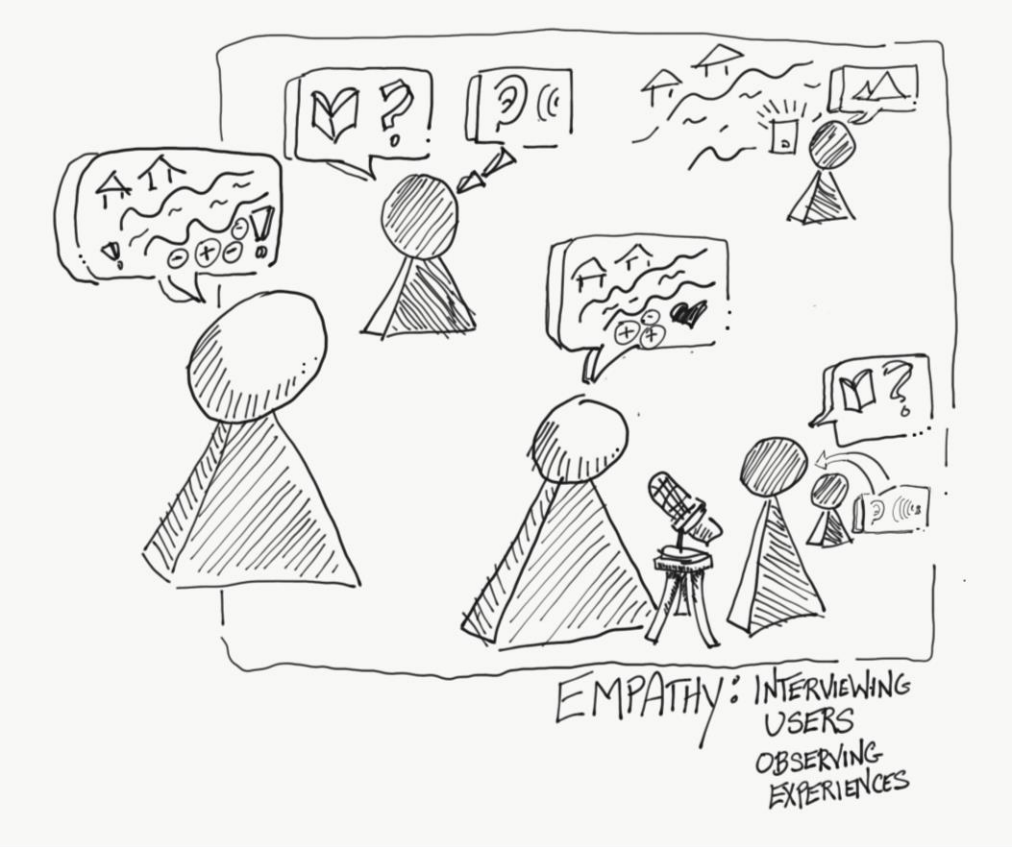
The **DISCOVER** phase is all about researching and understanding the problem students are trying to solve. This phase might include reading articles and watching videos about the problem. It might include interviewing experts who work on the problem or on similar problems. The discover phase is all about gathering information. In this phase, students usually take notes and collect resources that might help in solving the problem.



The discover phase is also a good time in the process for breaking a class into groups or design teams that can work together. It is also a good time for those teams to learn about one another since they will be working together to solve a problem. It can be very helpful for the teams to spend time discussing one another's strengths and weaknesses and how the team wants to share responsibilities.

At the beginning of their next class, Hannah asks students to brainstorm a list of problems they see in their communities. Students first write individual lists, then share their lists with one another. The class compiles a master list and sorts the problems into common threads. They notice that many people in their community are worried about the rising water levels in a local river and the impact this change is having on their transportation services, harvest seasons, and safe housing.

In the **EMPATHY** phase, the design team focuses on learning everything they can about the people who will be using the solution. These people are known as "the users." The goal of the empathy phase is to be able to look at the problem from the users' points of view instead of the designers' points of view. By empathizing, designers can better create solutions that truly meet the users' needs, rather than just an easy or inexpensive solution.



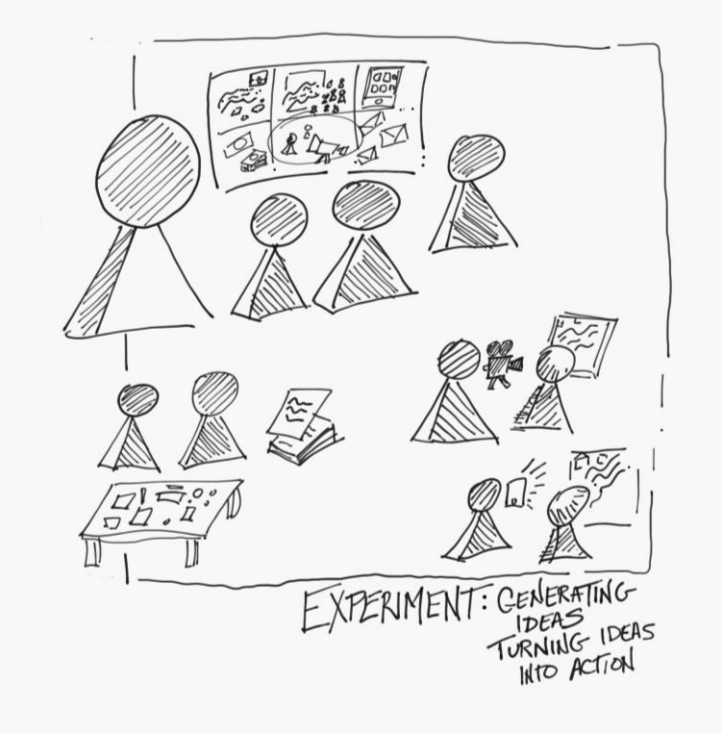
English language learners can put all of their new skills to great use during the empathy phase. When they conduct interviews with users, students can then translate those interviews into English. Translation allows students to examine similarities and differences in language and especially consider nuances and connotations of certain vocabulary. Students may even conduct the interviews in English and put their language skills to work.

After conducting several interviews with different users, design teams usually examine the notes taken and "unpack" them. In the design process, unpacking means to look at a collection of notes and identify the insights and understandings that might lead to a solution. For example, during an empathy interview about community information resources, users might mention that they have difficulty leaving their homes during the day and that they feel frustrated when the most reliable source of information is only available during daytime hours. Designers could then identify that reliability and accessibility are important to their users. The process of unpacking provides another opportunity for students to practice their English language skills, whether it is translating their notes and insights into English or creating summaries of their new understandings in English.

The empathy phase separates design challenges from other project-based learning experiences. This phase should be emphasized during any design challenge because the goal of the challenge is to meet the needs of the users. Without concern for the users, a solution could be seen as good enough but not really benefit the users. The empathy phase also makes it easier for teachers to hold their students accountable for quality interviews and note-taking skills. We can ask students to cite the information they learned during an interview when justifying the quality and effectiveness of their designs.

Hannah's students start talking to more people in the community about the river. They interview business owners and farmers, people who live along the river and people who live far from its banks. They interview the oldest members of the community and some of the youngest. And when the students analyze all of those interviews, they learn how to better empathize with those individuals and see the problem from several different points of view.

The **EXPERIMENT** phase is the third phase and is often the one where students have the most fun. The experiment phase requires students to brainstorm and generate lots and lots of ideas of what might work as a solution to the problem. Students should be encouraged to think of all sorts of wild and crazy ideas without worrying about concerns like costs or feasibility. The goal in this phase is to come up with and try out lots of solutions.



After the initial brainstorming and experimenting, then it is a good idea to ask students to consider the creative constraints: the boundaries within which an effective solution has to exist. Creative constraints might relate to size and costs of a solution, the materials used to construct a solution, or the number of users for which a solution must work.

During the experiment phase, English language learners might be asked to share their ideas in English or to label their sketches in English. They might be asked to present their most encouraging ideas so far to the rest of the teams or to provide insights and feedback to other teams.

Hannah helps her students define the problem they hope to solve: in order to feel safe and secure, people in the community need help managing the changes caused by the rising river. After dividing into work teams, generating many ideas, and exploring a few possibilities through rough drawings, models, and diagrams and much discussion, the students vote on a promising solution: the students want to share their community's story with international non-profit organizations that help communities with climate change concerns.

The **PRODUCE** phase is the final phase in DEEP design thinking, and it requires students to develop a solution that is ready to receive feedback from the users.

It is important to understand that in the produce phase, the solution does not have to look professional or be perfect in any way. Designers call these solutions "prototypes." They are a first attempt but are complete enough to gain feedback. To get feedback on their prototypes, students might use interviews or surveys. Students might conduct observations or collect data in other ways that let them measure the effectiveness of their prototypes.

At the end of the produce phase, students are typically encouraged to revise their solutions and create what are known as second **iterations.** An iteration is a complete version of a solution that reflects changes made based on feedback. Design thinking encourages designers to think in terms of iterations rather than final products. This way of thinking helps students and educators to see every learning experience as an opportunity to grow and improve, rather than just a score.

The students then work with Hannah to create a brief podcast in English about the river and the impact of the rising water levels on the community. They translate community interviews into English and use parts of those translations in the podcast. Students record a piece of music to use at the beginning of the podcast and edit the project on Hannah's computer. They take many pictures of the area and use Hannah's computer to add notes to the photos in English, creating diagrams and models that show how the river has changed. They create a simple website using the photos, upload the podcast, and prepare to send the address of the website along with letters of introduction to ten international organizations, several of which are based in the U.S., Canada, and Great Britain.

However, before they send the podcast, the students ask members of the community to listen to the story and to look at the photos. The class receives feedback with details to include and answer some questions about the translation. Some community members are disappointed that only the translations are included and not their own voices, so the students revise the podcast and share a new iteration a week later. This time, the community members are happy, and the students send the podcast out.

Hannah reflects on the work the students did and assesses the skills they demonstrated through their translations, their interviews, their letters of introduction and their discussions. Then she asks herself, "What might my students need to experience next?"

Adopting Design Thinking as an Approach to Planning Instruction

Some educators might be intimidated by the thought of integrating a design challenge into their classroom. The process may seem too time-consuming or difficult to manage given the circumstances of the course. These are understandable reasons to be cautious and concerned.

However, you may always adopt a design thinking mindset and then apply a design process when developing lessons and activities, curriculum, and assessment. Consider the impact on students if a teacher sees failed exams as opportunities for revision and additional attempts at learning. There is considerable value for teachers who consider a wide range of possible solutions for problems in the classroom instead of adopting the first one that comes to mind. Furthermore, students benefit when a teacher models what it is like to struggle with a new idea and explains that it is okay to be uncomfortable with new information.

When planning instruction or a new form of assessment, try using DEEP DT. Start by investigating and researching different strategies and forms of assessment. See what examples you can find that relate to the challenges you and your students are facing in class. Then do some empathy work with your students. Ask them what makes a meaningful learning experience for them. Ask them to tell you stories about the times they have felt the most successful in class and the times they have struggled. Look for how their responses can help you in the next phase where you generate many ideas to help your students. Develop an idea that aligns well to your curricular goals as well as your students' expressed needs. Try the idea out with your students as a pilot, or a practice attempt, and let them know it is okay for the experience to be a bit messy and complicated. Collect some feedback, revise the strategy, and try it again, this time with even more confidence that your approach will work.

Preparing Ourselves for Possibilities

When we approach teaching as a problem to be solved through empathy, we open ourselves up to a wide variety of solutions that are no longer bound by our personal experiences. When we listen to students with the intent to understand their points of view rather than to express our own opinions, we spark ideas for instruction and learning opportunities we may not have ever considered otherwise. And when we accept that teaching and learning can be full of challenges and struggles, we can accept that it is okay to be imperfect and every lesson and every interaction with students is an opportunity to become even better educators.

This article was written by contributing author Dan Ryder.

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